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The U.S. Army may be experiencing the most drastic changes it has ever faced. The Army Transformation Campaign currently affects all types of units. Active, reserve, and National Guard units are embracing the pains of changing into the objective force. The objective force is a conceptual force of the future with the characteristics of being lighter, more deployable, less manpower intensive, and more lethal. Within the past year, four divisions have undergone significant efforts to form the new unit of action (UA) brigade combat teams. Although the Army transformation strategy focuses on independent brigade sized elements, training plans for the signal company in a UA must retain the higher echelon training in order to provide tactically and technically proficient communications soldiers capable of completing the mission.

The Digital Force

The first training challenge that faces the signal company is an increasing demand for a broader proficiency in communications equipment. The transformation into a digitized force requires an exponential increase in the number of communication systems. With this increase, the vision of the signal regiment is shifting from overlaid communication systems

to embedded communication systems.[1] Embedded communications means that some sort of communication device or sensor will be integrated into every vehicle, soldier, weapon system, and platform on the battlefield. The result of embedding communications is an increase in the percentage of communication devices per signal soldier. A study of the transformation of the 4th Infantry Division (4ID) into Stryker brigades revealed that electronics repair personnel are responsible for three times the amount of communication equipment when compared to a legacy heavy division.[2] Not only has the sheer numbers of communication equipment tripled, but the diversity of equipment increased as well. Communication soldiers are still responsible to maintain proficiency on legacy systems as well as learn new technologies.

The Army has made a fundamental shift away from using primarily 'green' equipment (designed specifically for the Army). The procurement and fielding processes have been modified so that it is possible to purchase commercial off-the-shelf (COTS) communication equipment in order to keep pace with the rapid change in available technology. The 3rd Infantry Division (3ID) recently fielded the joint network node (JNN) and satellite communications (SATCOM) Ku trailers to all UA's before

[1] *Signal Regiment Vision* (Fort Gordon, GA: U.S. Army Signal Center), 17.
[2] Wayne B. Anderson and Gerald S. Garfinkel, *Maintaining the Information Flow: Signal Corps Manpower and Personnel Requirements for the Battlefield*. <http://www.dodccrp.org/events/2004/CCRTS_San_Diego/CD/papers/180.pdf> (07 Jan 2005).

deployment. This fielding completely replaced the legacy mobile subscriber equipment (MSE) that the signal companies had operated since the 1980's. The JNN and the SATCOM Ku trailers have very little Army standard equipment inside them, and are mostly comprised of COTS equipment, which is all brand new to the signal soldiers of 3ID.

As the Army transforms, a great disparity between what equipment each signal unit uses will exist. Some units will continue to use legacy MSE equipment, others will have a mix of old and new, and the rest will be fielded with some version of new. Regardless, signal soldiers will be expected to install, operate and maintain their assigned equipment to a high standard of reliability.

The transformation of the Army into digitized units means that commanders will become more dependent on digital force multipliers. The vision for the signal regiment is to make [digital] information one of the most essential elements of combat power.[3] According to a report by the National Defense University, the ability for the Army to transform hangs on the "success in exploiting information technologies."[4] The vision for the objective force of the future trades slow, heavily armored equipment for lighter armor and better intelligence. As

[3] *Signal Regiment Vision*, 16.
[4] Hans Binnendijk, *Transforming America's Military*, (Washington D.C: National Defense University Press, 2002), 42.

commanders embrace and integrate new technologies in order to give themselves information superiority, they will in turn demand greater reliability from those technologies. It will become critical for communication personnel to maintain a redundant network that never fails. The end result being that information technologies and the personnel that make them work are transparent to the user. In order for this to happen the signal company must train its personnel to a higher standard of proficiency.

Institutional Training Falls Short

The second challenge a signal company in a UA must overcome is the limited training resources, especially the minimal amount of MOS training a soldier receives. It is generally understood that a soldier will only have a general knowledge of the systems he or she will be responsible when they arrive in their first unit. Depending on the unit and the equipment fielded in the unit, a soldier may not have even seen the equipment during Advanced Individual Training (AIT). Training during AIT is limited due to funding challenges, but this affects the training in multiple areas.

AIT for signal soldiers is limited by a TRADOC standard of a twenty-week school length. AIT for an information systems operator (25B) follows the twenty-week limit, while training for

a network switching systems operator/ maintainer is only eighteen weeks.[5] This is the time allotted for a soldier to learn all the different communication systems he/she might be responsible for in his/her first unit. When compared to the twelve weeks of new equipment training (NET) required for the soldiers of 3ID to become trained on the joint network node, one realizes the challenge of training new privates on a myriad of communications equipment in such a short amount of time.[6] During the transformation process the diversity in equipment will become more complex until the majority of the units have undergone transformation. Units will carry a large responsibility for collective and sustainment training in order to bring new soldiers to a minimum proficiency.

Institutional schools are also financially limited in purchasing the new equipment to train on and must rely on simulation training. Currently, the funding priority is to field the units with new equipment and pay for the new equipment training contracted by the vendor. TRADOC schools may not receive the equipment being fielded, such as the JNN, for several years. Additionally, personnel teaching at TRADOC schools will not have the opportunity to work with the new equipment in the near future. Due to the funding priorities and

[5] *25F Program of Instruction*, (Fort Gordon, GA: Signal Center, 2004), 1.
[6] Vincent A. Amos, *3ID Lessons Learned: 3ID OIF Master Schedule* (Fort Gordon, GA: Signal Symposium briefing slides, 2 Dec 2004), 7.

personnel training, it will take the signal school several years to incorporate the new training into the program of instruction. This means the UA signal company will be responsible for the complete training of a new soldier on newly fielded equipment.

Dispersed Signal Assets

The third challenge that faces the signal company in a UA is the reduction and dispersion of senior personnel due to transformation. As the vision for the signal regiment seeks to embed communication technology into the objective force, along with technology, communication personnel become embedded in the task organization. Traditionally, a signal battalion supported an infantry division. The platoon and companies of the signal battalion trained together, but they also form habitual relationships with the units they supported. In the unit of action, a smaller signal company is found in the special troops battalion. Another larger signal company is found in the Division Headquarters (UEx) special troops battalion. The transformation splits the signal battalion comprised of three area signal companies into four separate signal companies supporting each brigade and one more company to support the division headquarters.

The transformation of the task organization for signal assets not only disperses the signal assets, but also reduces

the density of senior non-commissioned leadership in the signal company. A comparison on the modified table of organization and equipment (MTOE) of the Stryker brigade signal company and the new 1st Brigade Special Troops Battalion shows a large reduction in the senior NCO leadership, especially for the grade E6.[7] (see table below).

Unit	E7	E6	E5	E4/E3
UA	5.6%	11%	22%	59%
SBCT	7.3%	16%	20%	54%

Percentage of total enlisted personnel by grade

The MTOE of the Stryker Brigade Combat team was designed with a much higher concentration of NCO leadership in the signal company. This reduced amount of experienced leadership has the potential to create a shortage of quality trainers within the company.

The battalion commander for the special troops battalion is a combat engineer by MTOE. A mixed unit, a military intelligence company is found in the special troops battalion as well. Compared to the task organization of the divisional signal battalion, planning integrated training for the signal company presents significant challenges. As a combat engineer, the battalion commander will not be as familiar with the unique requirements in training a signal company compared to a Signal

[7] *Modified Table of Organization and Equipment: Brigade Special Troops Battalion (HVY UA)*, (Fort McPherson, GA: Headquarters, U.S. Forces Command, Jul 2004), 5-7.

branch commander. The only training resource inside the brigade will be the S6 section found in the headquarters. Where the old signal battalion was able to pool training resources and schedule battalion field exercises, the signal company will be required to coordinate outside the brigade for any higher echelon training. Considering that the signal company is already short on experienced trainers, this is a real disadvantage.

Self Managed?

There is an alternate view of the signal corps that suggests that as communications become embedded, the signal corps will transform its primary mission from install, operate and maintain, to one of managing the network. This view suggests that communications equipment will become so advanced that it will not require dedicated personnel to 'run' the network. The *Army Transformation Roadmap* calls that capability "mobile, secure, self-organizing networks for seamless joint operations."[8] While this time may come, the equipment soldiers use today is far from self-managed.

[8] *U.S. Army Transformation Roadmap*, (Washington D.C.: Headquarters, Department of the Army, 1 Nov 2003), 7-12.

Recommendation

The unit of action signal company faces serious challenges in keeping its soldiers trained and ready. As the Army transforms to the objective force and becomes more digitized, the signal corps will be responsible for an increasing amount of communication equipment. The networks and communications architectures will become more complex and at the same time require a higher degree of reliability. Changes to force structure and task organization will disperse signal personnel and force them to operate in smaller teams. Critical training resources such as available equipment and time for pure signal training will continue to be scarce forcing units to rely on alternate methods. With the unique challenges and critical nature of the signal mission, maneuver commanders must give priority for dedicated training time in order to provide the signal community the ability to pool resources and knowledge in higher echelon training.

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